

CELEBRATING
COMMERCIALISATION
YEAR 2014

iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention
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exposition 2014

INNOVATEUR
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2014

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UNIVERSITI TEKNOLOGI MARA
MALAYSIA

*Bridging
the valley of death :
advancing the
commercialisation
of research*

RESEARCH BOOK

iiindex2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

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FOREWORD

The Honourable Minister of Science, Technology and Innovation (MOSTI) has launched 2014 as Malaysia Commercialisation Year 2014 (MCY2014) with the theme Science Technology and Innovation (STI) for Wealth Creation. In line with this theme, Invention, Innovation, Design & Exposition 2014 (iidex2014) is an annual exposition organized by UiTM and is the ultimate platform to highlight and commercialise new inventions and innovations. Researchers and inventors will exhibit their products which cater to the needs and wants of the community and the country.

The iidex2014 creates a new dimension by fusing two competitive concepts, a competition among innovative products and a competition to invite Innovateur Wannabes to perform live pitching of their products to the audience. The iidex2014 focuses on comprehensive commercialization and creating opportunities for entrepreneurs to carry out R&D as well as to provide avenue to commercialise their products. Through expositions such as iidex2014, MOSTI hopes to inculcate the culture of commercialisation of new technology designed and created by Malaysians.

I wish to congratulate all the participants of the iidex2014 and this is the opportunity for all researchers to show their ideas and exhibits their products and creativity. Apart from showcasing their products, innovators will have the opportunity to provide a window to the industry for business matching during the exposition.

Tan Sri Dato' Sri Sallehuddin Mohamed
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BLOWFLY MAGGOTS AS THE PHYSICAL EVIDENCE FOR FORENSIC CASES

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Estimation of post mortem interval (PMI) is one of the most crucial matters in death investigation and entomological specimen has widely been applied to determine PMI after 72 hours of death. This is done using the oldest blowflies larvae found and from the succession pattern of insects that colonize the dead remains. Thus, the uses of blowflies in forensic cases are crucial. The most common blowflies in Malaysia are *Chrysomya megacephala* and *Aechotandrus rufifacies*. Blowflies arrived and oviposited on the body minutes to the death as the odour released from autolysis process happened in carcass, attracts them. The eggs then grew to feeding larvae that feeds on the dead remains, until it reaches maturity. Larvae that feed on tissues of an individual who had taken drugs or poison while the person is still alive, will ingest the substance as well as its metabolites, proving that the drugs had accumulated in the body. In addition, the current situation of criminal cases nowadays, involved the use of firearm. Forensic investigation of such cases requires physical evidences to be collected at the scene of crime. In an extreme condition, when the bullet case is not found and the dead body is in active decomposition stage, blowfly maggots obtained from dead remains are potential in aiding forensic investigation. Our laboratory studied the presence of several toxins which were malathion, paraquat, gasoline, paracetamol and ketum extracts, along with gunshot residue (GSR), to determine the effects of all the toxins and GSR in development rates of blowflies, *Chrysomya megacephala* and *Aechotandrus rufifacies*, in which the presence of toxins may affect the estimation of PMI. We were also exploring the potential of blowfly samples to be applied in forensic investigation in detecting toxins and GSR. From our findings, it showed that the presence of malathion, paraquat, gasoline, paracetamol, ketum extracts and GSR in blowflies system affected the development rates of both flies. In real intoxication and shooting cases involved on decomposed remains, estimation of the correct PMI using larvae samples should consider the duration delayed and accelerated on the blowflies' development. We also found that the presence of active components of toxins studied from the blowfly samples, proving the potential of blowfly samples to be applied in investigation. As a conclusion, blowflies of *C. megacephala* and *A. rufifacies* are suggested as important physical evidence in forensic investigations.